

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for ~~the treatment of~~ treating an aqueous stream containing both anionic and cationic species, the method comprising ~~the~~ steps of:

continuously circulating water through ~~an essentially closed~~ a loop incorporating an ion adsorption unit comprising a water permeable layer of an ion adsorbing material;

feeding to the ~~essentially closed~~ loop an aqueous solution containing the anionic species and the cationic species;

continuously passing the circulating water ~~including~~ and the aqueous solution containing the ~~ionic~~ anionic species and the cationic species through the ion adsorbing material in the ion adsorption unit while applying an electric potential across ~~the~~ a thickness of the water permeable layer of the ion adsorbing material and removing from the ion adsorption unit ~~more concentrated aqueous solutions of the separate ionic species~~ an anolyte containing the anionic species in an increased concentration and a catholyte containing the cationic species in an increased concentration;

continuously discharging from the ion adsorption unit the ~~more concentrated aqueous solution of one ionic species~~ catholyte;

continuously discharging from the ion adsorption unit the aqueous solution depleted in the anionic species and cationic species as a result of the aqueous solution passing through the ion adsorption unit;

continuously passing the anolyte ~~more concentrated solution of the other ionic~~
~~species~~ through a reaction unit in which the ~~ionic~~ anionic species reacts with a reactant
added to the reaction unit to form a water-insoluble solid material;

removing the water-insoluble material from the reaction unit;

continuously ~~recycling~~ passing eluate from the reaction unit to the ion adsorption
unit; and, if necessary,

adding to the ~~closed~~ loop a quantity of water corresponding to the quantity of the
aqueous solution removed from the reaction unit.

2. (Currently Amended) A method according to claim 1, wherein the anionic species
is ~~ammonium~~ fluoride and the cationic species is ~~fluoride~~ ammonium.

3. (Cancelled)

4. (Currently Amended) A method according to claim 2, wherein ~~a concentrated~~
~~aqueous fluoride solution is continuously passed from the ion adsorption unit into a~~
~~calcium precipitation unit thereby~~ the reaction unit comprises a calcium precipitation unit
and the reactant is calcium that reacts with the fluoride to form solid CaF₂.

5. (Original) A method according to claim 4, wherein a source of calcium as a solution
or slurry is continuously admitted to the calcium precipitation unit.

6. (Original) A method according to claim 5, wherein the source of calcium is a slurry

7. (Currently Amended) A method according to claim 5, wherein ~~depleted~~ the aqueous solution continuously discharged from the ion adsorption unit is used to prepare the solution or slurry of calcium.

8. (Original) A method according to claim 5, wherein eluate from the calcium precipitation unit is used to prepare the solution or slurry of calcium.

9. (Currently Amended) A method according to claim 5, wherein the amount of calcium admitted to the calcium precipitation unit is less than the stoichiometric amount for capturing fluoride, and wherein ~~the~~ a fluoride containing eluate from the calcium precipitation unit is recycled to the ion adsorption unit to combine with the anolyte ~~concentrated fluoride solution~~.

10. (Currently Amended) An apparatus for use in treating an aqueous stream containing both anionic and cationic species, the apparatus comprising:

~~an essentially closed loop~~ a circulation system containing (i) an ion adsorption unit comprising a water permeable zone of an ion adsorbing material and means for enabling an electrical potential to be applied across ~~the~~ a thickness of that zone and (ii) a reaction unit in which one of the anionic and cationic species is rendered substantially insoluble;

a pump for continuously circulating an aqueous solution around the closed a loop
of the circulation system;

an inlet for receiving an aqueous solution containing the anionic and cationic
species and eluate from the reaction unit to the ion adsorption unit closed loop circulation
system;

an outlet for discharging a concentrated aqueous solution of ~~one ionic species~~ the
anionic species or the cationic species from the ion adsorption unit;

an outlet for discharging a depleted aqueous solution from the ion adsorption unit;

an outlet for ~~solid~~ discharging an insoluble material from the reaction unit; and

an inlet for receiving water into the ~~closed loop~~ circulation system.

11. (Original) Apparatus according to claim 10, wherein the reaction unit is a calcium fluoride precipitation unit which comprises an inlet for an aqueous solution or slurry of a calcium source, an inlet for concentrated aqueous fluoride solution, an outlet for calcium fluoride and an outlet for aqueous fluoride eluate.

12. (Original) Apparatus according to claim 11, wherein the inlet for the aqueous solution or slurry of the calcium source is operatively connected to a mixing vessel in which the calcium source is mixed with water.

13. (Original) Apparatus according to claim 12, wherein the mixing vessel is operatively connected to the outlet for depleted aqueous solution from the ion adsorption unit.

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14. (Original) Apparatus according to claim 12, wherein the mixing vessel is operatively connected to the outlet for aqueous fluoride eluate from the calcium fluoride precipitation unit.